



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,230	04/20/2004	Young Hoon Kwark	YOR920040080US1	2532
21254	7590	08/14/2006	EXAMINER	
MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			TERESINSKI, JOHN	
			ART UNIT	PAPER NUMBER
			2858	

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/827,230

Applicant(s)

KWARK, YOUNG HOON

Examiner

John Teresinski

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16, 18-22 and 26 is/are rejected.
- 7) ☒ Claim(s) 6 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 23-25 remain withdrawn as non-elected.

Specification

The amendment filed May 16, 2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: *and an electrical impedance of said probe is substantially independent of said pitch of claim 1, an electrical impedance of said probe being substantially constant as said pitch is adjusted of claim 18 and at least one peripheral contact affixed to the conductive outer wall in a substantially permanent manner of claim 26.*

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

Art Unit: 2858

art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claimed limitations *and an electrical impedance of said probe is substantially independent of said pitch* of claim 1, *an electrical impedance of said probe being substantially constant as said pitch is adjusted* of claim 18 and *at least one peripheral contact affixed to the conductive outer wall in a substantially permanent manner* of claim 26 are not supported in the specification. Applicants specification at best provides support for a CPW probe that can be adjusted for various pitches without compromising the electrical performance required (page 3, lines 13-15) which is not sufficient for the added limitations. Further applicants specification (page 2 lines 15-20) notes that it is well known for coplanar waveguide probes to be extremely sensitive to changes in shape and dimension at high frequencies which further contradicts the new matter of claim 18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 9, 10, 13, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0107363 to Tsironis in view of U.S. Patent No. 6,967,473 to Reed et al.

Regarding claim 1, Tsironis discloses a test probe having at least one center probe element (Fig. 5 element 24) having a respective center probe contact point and a peripheral probe element (Fig. 5 element 23) having a peripheral contact point wherein the pitch of the center contact and peripheral contact is adjustable (paragraphs 20, 50 and 52). Tsironis does not explicitly teach the electrical impedance of the probe is substantially independent of probe pitch. Reed et al. disclose a variable spacing probe tip system including coplanar waveguide assembly (Fig. 3-4) with a peripheral contact point wherein the pitch of the center contact and peripheral contact is adjustable (column 5 lines 33-59) and controlling the electrical impedance of the probe such that the impedance is substantially independent of probe pitch (column 3 lines 15-28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an electrical impedance of the probe is substantially independent of probe pitch as taught by Reed et al. into Tsironis for the purpose of reducing capacitive effects on the probe tips to provide higher bandwidth capability (column 2 lines 34-50).

Regarding claim 9, Tsironis discloses a test probe having a micro-coaxial cable having a center conductor (Fig. 5 element 27) and a conductive outer wall (16), and a probe tip section having a center contact (24) extending from the center conductor and at least one peripheral contact (23) connected to the conductive wall wherein a pitch between the center contact and peripheral contact is adjustable (paragraphs 20, 50 and 52). Tsironis does not explicitly teach at a predetermined distance from the conductive outer wall in a manner to provide flexure between the peripheral contact and conductive outer wall. Reed et al. disclose a peripheral contact connected to a conductive outer wall at a predetermined distance from the conductive outer wall in a manner to provide flexure between the peripheral contact and conductive outer wall (column

Art Unit: 2858

6 lines 1-12, 48-55, Fig. 3 and 4 elements 110, 144). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include connecting the peripheral contact at a predetermined distance from the conductive outer wall in a manner to provide flexure between the peripheral contact and conductive outer wall as taught by Reed et al. into Tsironis for the purpose of preventing damage to the probe from contact with testing surface.

Regarding claim 18, Tsironis discloses a method and device for establishing low loss microwave links for microwave wafer probes (paragraph 16) including making an adjustment of a contact pitch on an air coplanar wave guide (CPW) probe having an adjustable contact pitch (paragraphs 20, 50 and 52) and placing contacts of the CPW probe in contact with test points of an electronic circuit/semiconductor chips (paragraphs 15 and 17). Tsironis does not explicitly teach electrical impedance of the probe is substantially constant as the probe is adjusted. Reed et al. disclose a variable spacing probe tip system including coplanar waveguide assembly (Fig. 3-4) with a peripheral contact point wherein the pitch of the center contact and peripheral contact is adjustable (column 5 lines 33-59) and controlling the electrical impedance of the probe such that the impedance is substantially independent of probe pitch (column 3 lines 15-28). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include an electrical impedance of the probe is substantially constant as the probe is adjusted as taught by Reed et al. into Tsironis for the purpose of reducing capacitive effects on the probe tips to provide higher bandwidth capability (column 2 lines 34-50).

Regarding claims 4 and 13, Tsironis discloses a shorting device that maintains an electrical contact between the peripheral contact and an outer wall of the CPW probe as the pitch changes (Fig. 5 see elements 23 and 25).

Regarding claims 10 and 19, Tsironis discloses the electronic circuit operates in the microwave range/microwave probe for testing semiconductor circuits with insertion loss at the microwave range (paragraphs 15 and 17).

Claims 3, 7, 8, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsironis and Reed et al. as applied to claims 1 and 9 above and further in view of U.S. Patent No. 6,828,768 to McTigue.

Regarding claims 3 and 14, Tsironis as modified does not disclose a spreader for urging the at least one peripheral probe element apart from the center element. McTigue discloses a probe with a center (Fig. 3D element 308) and peripheral (317) probe elements and a spreader for urging the at least one peripheral probe element apart from the center element (ie. ground tip receptacle 316 which holds the peripheral/ground probe away from the center contact as it is rotated see fig. 3D-G). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a spreader for urging the peripheral probe as taught by McTigue into Tsironis as modified for the purpose of providing measurements with out repeated adjustments due to the support provided.

Regarding claims 7, 8 and 15, Tsironis as modified does not disclose a conductive material in a compressed state that urges the peripheral probe element apart from the center probe element or a metal spring. McTigue discloses a metal spring in a compressed state that urges the peripheral probe element apart from the center probe element (column 15 lines 40-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a metal spring in a compressed state that urges physical separation as taught by

Art Unit: 2858

McTigue into Tsironis as modified for the purpose of providing measurements with out repeated adjustments due to the support provided.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsironis and Reed et al. as applied to claim 18 above and further in view of U.S. Patent No. 5,959,512 to Sherman.

Regarding claim 22, Tsironis as modified does not disclose making a coarse adjustment based on a pitch indication on the probe and subsequently making a fine adjustment based on viewing of the probes under a magnification device (ie. a varactor tuned waveguide including mechanically adjusted scre providing coarse adjustment followed by fine adjustment by the varactor see column2 lines 27-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include coarse tuning followed by fine tuning as taught by Sherman into Tsironis as modified for the purpose of limiting losses.

Claims 2, 5, 11, 12, 16, 20, 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsironis, Reed et al. and McTigue as applied to claims 1, 8 and 19 above, and further in view of U.S. Patent No. 9,392,354 to Plutchok.

Regarding claim 2, 5, 11, 12, 20, 21 and 26, Tsironis does not disclose longitudinal translation of a movable sleeve fitted to the outer wall of the CPW assembly to control physical separation of the probe elements or a threaded outer sleeve. McTigue discloses rotational translation of a movable sleeve fitted to the outer wall of the CPW assembly to control physical separation of the probe elements (Fig. 3D-G). Plutchok discloses a method and device for tuning

Art Unit: 2858

a waveguide including longitudinal translation of a movable sleeve fitted to the outer wall of the CPW assembly to of probe elements and a threaded outer sleeve (Fig. 1-3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a threaded outer sleeve and longitudinal adjustment as taught by Plutchok into Tsironis as modified for the purpose of providing quick and easy tuning of the waveguide.

Regarding claim 16, Tsironis disclose probe elements with a tapered shape (Fig. 5 elements 23 and 24).

Allowable Subject Matter

Claims 6 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Regarding claims 6 and 17:

The primary reason for the allowance of claims 6 and 17 is the inclusion of a calibration indication associated with position of the movable sleeve. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (571) 272-2235. The examiner can normally be reached on M-F 8:30 - 5:00.

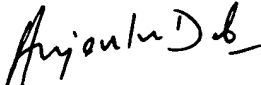
Art Unit: 2858

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
JT

August 3, 2006


ANJAN DEB
PRIMARY EXAMINER